Lower Mississippi River Sub-basin Committee on Hypoxia
Olive Branch, Mississippi
September 18, 2007

Participants:

Phil Bass, EPA Gulf of Mexico Program
Ken Brazil, Arkansas Natural Resources Commission
Doug Daigle, Lower Mississippi Sub-basin Committee
Paul Davis, Tennessee Department of Environmental Conservation, Water Pollution Control
Doug Fruge, US Fish & Wildlife Service
Reed Gaben, US Geological Survey, Arkansas
Steve Goff, Mississippi Department of Environmental Quality
Martin Locke, USDA Agricultural Research Service, National Sedimentation Lab
Dugan Sabins, Louisiana Department of Environmental Quality
Dexter Sapp, USDA Natural Resources Conservation Service, Louisiana
Cliff Snyder, International Plant Nutrition Institute
Mike Sullivan, USDA Natural Resources Conservation Service
Tom Van Arsdall, Kentucky Department of Environmental Protection
Mike Wells, Missouri Department of Natural Resources
Jim Wise, Arkansas Department of Environmental Quality

AGENDA

Welcome and Introductions

Review of Sub-basin Committee Formation and Mandate; Mission Statement (2003)

Update and Summary of Hypoxia *Action Plan* revision process and timeline. Discussion of potential revisions: Coastal and Within-Basin Goals.

Briefing on SPARROW Model and findings for Lower Mississippi River – Richard Rebich, US Geological Survey

Discussion of LMR Nutrient Reduction Strategy and new EPA monitoring effort

Updates on Focus Watershed Projects and other work in Sub-basin

Adjourn

Review of Sub-basin Committee Formation and Mandate; Mission Statement- Doug Daigle, LMRSBC Coordinator

The Lower Mississippi River Sub-basin Committee on Hypoxia (LMRSBC) was formed under the *Action Plan for Reducing, Controlling, and Mitigating Hypoxia* (2001). The LMRSBC consists of the agencies of the states of Arkansas, Louisiana, Mississippi, Missouri, and Tennessee which serve on the national Task Force, along with federal partner agencies (EPA, USDA, USFWS, USGS). The non-profit organization Agriculture Coalition for the Environment is a supporting member.

The LMRSBC formed in 2003, and adopted a Mission Statement at that time. The key goal of the Mission Statement was to establish a process of communication and coordination among agencies and states aimed at supporting implementation of the *Action Plan* and coordinating its implementation in the Lower Mississippi River Basin., and to work together to ensure federal funding. (The entire Mission Statement and other information can be seen at the LMRSBC webpage at www.epa.gov/gmpo/lmrsbc.htm.)

Update and Summary of Hypoxia *Action Plan* revision process and timeline

Doug Daigle, LMRSBC: There are two parallel processes underway: the completion of a report by the EPA Science Advisory Board Hypoxia Advisory Panel, and the reassessment and revision of the *Action Plan* by the Coordinating Committee and Task Force. The SAB Report consists of a reassessment of the science of hypoxia and management options, as charged by the Task Force in 2005. The SAB Panel's report and findings will be utilized by the Task Force in revising the *Action Plan*. A draft was released for public comment in July, and then went to EPA for review by the SAB Charter Board.

Dr. Cliff Snyder, INPI: The draft report was sent to the SAB Charter on August 30, and from there it will go to the EPA Administrator. I believe there will be a briefing of the Task Force by the SAB in November. It's possible that in the event of a proposed major revision that the HAP would be approached, but their work is done at this point. It's been a long process since last August when the Panel convened.

Doug Daigle, LMRSBC: Here's a breakdown of the *Action Plan* Reassessment/Revision Process based on the latest information I have:

2007

September

EPA Science Advisory Board Hypoxia Advisory Panel Draft Report goes to Charter Board review

Coordinating Committee/Task Force review SAB draft

October

Draft Hypoxia Action Plan to Task Force; initial draft released for public comment

Hypoxia Task Force meeting October 29-31, Cincinnati, OH

November

Final SAB report to EPA

Coordinating Committee/Task Force revision of Hypoxia Action Plan based on public comment

2008

January-February

Coordinating Committee agreement on Action Plan revision
Task Force meeting in February

March

Task Force agreement on final version of 2008 Action Plan
- publication

[To see latest draft of SAB Hypoxia Report go to:
http://epa.gov/sab/pdf/8-30-07_hap_draft.pdf

Main site for Hypoxia Advisory Panel:
http://epa.gov/sab/panels/hypoxia_adv_panel.htm]

Discussion Topic: Action Plan Goals

Doug Daigle, LMRSBC: One of the topics of discussion in the Action Plan revision process has been whether to change the plan's goals. For reference, there are three goals in the Plan: a Coastal Goal, a Within-Basin Goal, and a Quality of Life Goal.

[Coastal Goal: By the year 2015, subject to the availability of additional resources, reduce the 5-year running average areal extent of the Gulf of Mexico hypoxic zone to less than 5000 square kilometers through implementation of specific, practical, and cost-effective voluntary actions by all States, Tribes, and address all categories of sources and removals within the Mississippi/Atchafalaya River Basin to reduce the annual discharge of nitrogen into the Gulf.

Within Basin Goal: To restore and protect the waters of the 31 States and Tribal lands within the Mississippi/Atchafalaya River Basin through implementation of nutrient and sediment reduction actions to protect public health and aquatic life as well as reduce negative impacts of water pollution on the Gulf of Mexico.

Quality of Life Goal: To improve the communities and economic conditions across the Mississippi/Atchafalaya River Basin, in particular the agriculture, fisheries and recreation sectors, through improved public and private land management and a cooperative, incentive-based approach.]

Discussion Points

- The Coastal Goal is the most quantitative and specific of the three. When it was finally adopted in December 2000, the understanding was that federal dollars were to be provided to the states. But so far this hasn't happened on a scale adequate to meet the goals. In the Action Plan process, we've been revisiting the goals, in particular the Coastal and Within Basin Goals. We acknowledge that we face some problems in getting enough resources on the ground to do the work.

We have several options. We can leave the goal as is, and qualify that it will need more resources to be met. One issue is that we're not sure we have enough time to do the work necessary to meet the goals. Another option is to admit up front that we don't think we can meet the goal. Or we can keep it and try to make it. The SAB Report has raised the estimates of needed reductions in loading to the Gulf up to 40% for nitrogen, with 45% for phosphorus.

- One issue that received more importance in the SAB draft is the seasonality of discharge of total nitrogen and total phosphorus. The importance of the spring discharge

could impact management actions.

- If we can find the high discharge areas, we could focus on those.

- Spring is a high water time, which means that there may be opportunities with river management, reconnecting the river to floodplain wetlands.

  - A program that's gotten a lot of attention is the Iowa Hypoxia Reduction Initiative, which utilizes the CREP program to reduce nutrient loads by constructing wetlands. They've had to overcome some regulatory hurdles, and brought together a number of agencies to discuss that. So I think that is a Task Force success story. We should compile CREP success stories in each state. In Louisiana one of the largest nutrient problem areas is in the northeast delta, where we have a number of projects underway.
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  - Our area has been identified as contributing most of the phosphorus, and a different approach is needed to reduce that, probably focusing on point sources.
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- The SAB draft has increased the percent of nutrient loading from point sources in the basin.

- The development of nutrient criteria for phosphorus through the Clean Water Act will help achieve reductions.

Cliff Snyder, INPI: wanted to distribute a reference piece on nutrient use and efficiency that I did for INPI. We selected 4 definitions of efficiency to use as metrics. The article is called “Gear Up” and ran in Crops and Soils magazine. It can be found on www.ipni.net.

Dugan Sabins, LDEQ: What trends are being seen with the increase in ethanol production?

Cliff Snyder, INPI: It's affected the fertilizer market. The effects on water quality aren't clear yet. The industry sees the value of being proactive, and has been successful in raising awareness within the industry. INPI has eighteen international member companies, working from a global perspective.

Dugan Sabins, LDEQ: On our drive up through the delta, we saw a lot of acres of corn where there had been cotton before.

Cliff Snyder, INPI: Corn is an intensively managed plant, and its nitrogen timing is different from cotton. Cotton has less nitrogen applied, and corn is planted sooner than cotton in many areas. So there's potentially higher nitrogen in the spring. Timed applications are one option for management. It costs more. Not much anhydrous ammonia is used south of Cape Girardeau, Missouri. More urea is being used because of corn. There are more management options, and our education programs help farmers understand the metrics.

Within-Basin Goal in Action Plan

Doug Daigle, LMRSBC: There has been some discussion of trying to arrive at a numeric or quantitative within-basin goal.

Tom Van Arsdall, KDEP: What would drive those? How would we set them?

Phil Bass, EPA GMPO: We should remember that this whole process started with the threat of a lawsuit by some NGOs, and those folks haven't gone away. If the courts decide the issue, it will likely be more than voluntary. In my view the reassessment is a major step forward. We're getting better data. The SAB report has already raised the input from point sources to 22% from 11%.

Doug Daigle, LMRSBC: I think it was a strength of the Plan that it had the whole basin to work with. But we do have significant opportunities in the lower river sub-basin.

Phil Bass, GMPO: We can't expect the north to carry the whole load – the south has to do its part.

Cliff Snyder, INPI: Are there efforts underway to set estuarine nutrient criteria?

Phil Bass, GMPO: The Gulf Alliance has advanced the establishment of nutrient criteria in the Gulf. Those have to be consistent. We should pick a pilot project for the northern Gulf that can serve as a test case. The Alliance is working to identify existing data and gaps, and get state funding to fill the gaps so that criteria can be established.

Dugan Sabins, LDEQ: The Alliance will have a conference on harmful algal blooms in New Orleans in November. The types of algae prominent at the mouth of the Mississippi River are not the same as those that cause harmful algal blooms and red tides, but they may still contain some neurotoxins.

Phil Bass, GMPO: One of the difficult things to explain with hypoxia is its cost. We can't

answer how much a clean Gulf is worth, but we also can't answer how much a clean Tampa Bay versus a polluted one is worth. The EPA Gulf Breeze Lab is working on eco-services valuation. The SAB says that we can't wait until we have all the data, we need to act now and collect evidence as we go along.

Doug Fruge, USFWS: The effects of hypoxia economically have not been dramatic so far, but they are increasing. The Gulf Marine Fishery Council is developing a management plan for open ocean aquaculture, and it was stated that they wouldn't want to locate such operations off the Louisiana coast because of the hypoxic zone.

Phil Bass, GMPO: You can set the value of an agricultural acre more easily than a coastal acre. This is a national issue. The Gulf is more valuable every day. If it crashes, the whole nation suffers.

Mike Sullivan, NRCS: Back to the question of goals, within basin goals have been discussed not necessarily as specific numbers, but as a way to increase the importance of the issue.

Ken Brazil, ARNC: I had some concern with the discussions about whether to make the goals quantitative. With our river compacts, we used load calculations and sampling protocols. Those are all difficult. If a percent reduction is used as a measurement, the science can't show how such reductions directly affect the Gulf. We could be missing other important factors.

Presentation on SPARROW Model

Dr. Richard Rebich, Investigations Section Chief, US Geological Survey, Mississippi Water Science Center, Jackson, MS

Slides:
ftp://ftpext.usgs.gov/pub/cr/tx/austin/Daniel/SPARROW/Lower_MS_River/

See also:
http://wi.water.usgs.gov/projects/rna/9km30.htm .

Discussion Points

- If this is a work in progress, it makes it more difficult to use it to guide where to direct resources.

– This also shows the importance of states having their own data

Mike Sullivan, NRCS: The CEAP effort is modeling too, in coordination with USGS and EPA. It will do a regional breakdown of practices, beginning with the upper basin, and show with- and without-conservation scenarios.

Doug Daigle, LMRSBC: The SPARROW maps indicate that the inputs in the Lower Mississippi are not insignificant, and that there is a good deal that we can do here.

Phil Bass: We should be able to achieve 1 to 1 reductions in the LMR because of its nearness to the Gulf.

Nutrient Reduction Strategies in the Lower Mississippi River

[Power Point Slides:

1) What can we do in the Lower Mississippi River Sub-basin to reduce nutrient loading/increase nutrient uptake to the river, tributaries, watersheds?

What are we currently doing?

What are we already planning to do?

What could we do with more funding?

2) The Sub-basin Committees were charged to develop such strategies by Action #6 in the *Action Plan*:

"States, tribes, and federal agencies... using available data and tools, local partnerships, and coordination through sub-basin committees... will develop strategies for nutrient reduction." These will include:

Setting reduction targets for nitrogen losses to surface waters;
Establishing a baseline of existing efforts...
Identifying opportunities to restore floodplain wetlands... along and adjacent to the [river]...
Detailing needs for additional assistance/funding.]

3)

4) Broad Areas of Action

Agricultural BMPs:

Conservation Tillage
Controlled Drainage Management

Cover Crops/Alternative Cropping
Fertility-Nutrient Management
"Precision Agriculture"
Flooding Fields (Winter/Waterfowl)

Watershed Protection and Restoration:
Restoration of natural functions and habitats, increased in-stream processing of nutrients;

Municipal systems: stormwater/wastewater systems -
Identify systems planning upgrades – aid for funding?

Wetland conservation, protection, restoration in the LMAV and active delta/coast;
Identify projects needing assistance on tributary rivers/watersheds.

Industrial Sources: Disseminate information on techniques developed in Louisiana Point Source Initiative to reduce industrial releases of nitrates]

Doug Daigle, LMRSBC: It's easy to outline the broad areas of action and opportunity, it gets more challenging to take it to the next step of specific sites where programs and projects can be funded, expanded, etc. We've begun that process – I've made slides showing Arkansas as an example of what kind of information would be included.

[Power Point Slides:

ARKANSAS

1) Primary Areas of focus: Delta eco-region,
Lower Ouachita Basin

Major Tributaries: Arkansas, St. Francis,White Rivers

Major Sub-Tributaries: L'Anguille, Cache, Ouachita Rivers

Agriculture Programs:
CSP – Upper White-Village Watershed, Lower St. Francis Watershed, Lower White/Bayou Des Arc Watershed, Little River Ditches
Buffalo River Watershed Partnerships: Swine Waste Management
Cadron Creek Dairies/Muddy Fork CAFO Project

2) TMDLs –
Stone Dam Creek (Arkansas R.) - ammonia and nitrate (2003)?
Sections of Miss. River – 303(d)?

Major Watershed Programs/Projects:
Bayou Bartholomew, Fourche Creek, White River
3) Wetland CPR (Conservation, Preservation, Restoration)
Arkansas Wetland Conservation Plan
Arkansas Wetlands Reserve Program
Ducks Unlimited – White River National Wildlife Refuge, Raft Creek, St. Francis, 7 Devils Swamp, Bayou Meto Wildlife Management Areas
Nature Conservancy – Benson Creek (Cache River), "Big Woods" Partnership

4) Resources:
Arkansas Watershed Advisory Group
Arkansas Stream Team
Lower Mississippi River Conservation Committee]

Discussion Points

– Ambient water quality data shows that N and P concentrations are fairly constant from Vicksburg to the Gulf.

Phil Bass, GMPO: Timing is a key issue here too – if we can slow down the N and P upstream in the spring, we can reduce their loading to the Gulf during the time that most of the hypoxia forms.

Dugan Sabins, LDEQ: Many of you know that the EMAP program that the lower river states had signed onto lost its funding. That was through the EPA Office of Research & Development (ORD). It appears that another effort is underway through the Office of Watersheds, Oceans, and Wetlands (OWOW), and that OWOW is already meeting with the Regions to set up stations. We don't see a need to reinvent the wheel here, since the states had all identified sites in the previous agreement.

Doug Daigle, LMRSBC: Another important consideration for the Lower Mississippi Sub-basin is that there have been extensive partnerships formed for all of these efforts, so we're not at square one, but have a lot of potential.